

Claims

[c1] What is claimed is:

1. A booster comprising:

a boosting circuit for boosting an input voltage to a pre-determined output voltage;

an oscillator for generating oscillating signals when the boosting circuit boosts the input voltage; and

a voltage detector electrically connected to the boosting circuit for stopping the boosting circuit from boosting the input voltage when the output voltage of the boosting circuit reaches a predetermined voltage.

[c2] 2. The booster of claim 1 further comprising an AND gate wherein one of the two input ends of the AND gate is electrically connected to the oscillator, and the other end is electrically connected to the voltage detector.

[c3] 3. The booster of claim 2 wherein the oscillator is a ring oscillator.

[c4] 4. The booster of claim 2 wherein the oscillator further comprises a frequency control circuit for adjusting the frequency of the oscillating signal generated by the oscillator.

- [c5] 5. The booster of claim 1 wherein the input voltage is provided by a fuel cell.
- [c6] 6. The booster of claim 1 wherein the voltage detector comprises a diode, a first resistor, a second resistor, a third resistor, and a bipolar junction transistor (BJT); wherein an emitter of the BJT is grounded, a collector of the BJT is electrically connected to a first end of the first resistor, a base of the BJT is electrically connected to first ends of the second and the third resistors, a second end of the second resistor is grounded, a second end of the third resistor is electrically connected to a negative pole of the diode, and a positive pole of the diode is electrically connected to a second end of the first resistor.
- [c7] 7. The booster of claim 6 further comprising a pair of series-connected inverters electrically connected to the collector of the BJT for adjusting a logic level.
- [c8] 8. The booster of claim 6 wherein the second resistor or the third resistor is a variable resistor.
- [c9] 9. The booster of claim 6 wherein the diode is a zener diode.
- [c10] 10. A method of boosting battery output, the battery electrically connected to a booster comprising a boosting

circuit, an oscillator, and a voltage detector, the method comprising:

(a) detecting an output voltage of the booster with the voltage detector;

(b) if the output voltage is lower than a predetermined voltage, with the oscillator generating a periodic pulse signal for controlling a transistor of the booster to execute an on/off operation for adjusting the output voltage; and

(c) if the output voltage reaches the predetermined voltage value, with the voltage detector generating a voltage signal whose logic level is zero for turning off the transistor.

[c11] 11. The method of claim 10 wherein the booster further comprises an AND gate wherein one of the two input ends of the AND gate is electrically connected to the oscillator, and the other end is electrically connected to the voltage detector.

[c12] 12. The method of claim 11 wherein the oscillator further comprises a frequency control circuit for adjusting the frequency of the oscillating signal generated by the oscillator.

[c13] 13. The method of claim 10 wherein the battery is a fuel cell.

- [c14] 14. The method of claim 10 wherein the voltage detector comprises a diode, a first resistor, a second resistor, a third resistor, and a bipolar junction transistor (BJT); wherein an emitter of the BJT is grounded, a collector of the BJT is electrically connected to a first end of the first resistor, a base of the BJT is electrically connected to first ends of the second and the third resistors, a second end of the second resistor is grounded, a second end of the third resistor is electrically connected to a negative pole of the diode, and a positive pole of the diode is electrically connected to a second end of the first resistor.
- [c15] 15. The method of claim 14 wherein the voltage detector further comprises a pair of series-connected inverters that are electrically connected to the collector of the BJT for adjusting a logic level.
- [c16] 16. The method of claim 14 wherein the second resistor or the third resistor is a variable resistor.
- [c17] 17. The method of claim 14 wherein the diode is a zener diode.